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The Limitations of Participant Recollection in the
Modeling of Organizational Decision-Processes

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The Limitations of Participant Recollection in the
Modeling of Organizational Decision-Processes

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Abstract

Two fundamental differences exist between models of the organizational decision process based on participant recollection and those based on archival data or field observation. These differences are discussed and sources of bias in participant recollections are outlined. Finally, suggestions for minimizing these biases in decision process research are offered.

Introduction

It has been argued (Katz, 1953; Mintzberg, Raisinghani, and Theoret, 1976, p. 248) that participant recollection provides the only satisfactory data on the decision-making process. Examination of archival data and field observation by researchers is sometimes seen as inappropriate because the organizational decision process often leaves few traces in organizational records and because outside observers who are not familiar with the details of a decision cannot draw sufficient information from their observations to generate accurate an model of the process. Mintzberg et al. (1976), quoting Chester Barnard (1966, pp. 192-193) make the following point:

Not the least of the difficulties of appraising executive functions or the relative merit of executives lies in the fact that there is little direct opportunity to observe the essential operations of decision. It is a preplexing fact that most executive decisions produce no direct evidence of themselves....

However, some researchers have developed models of the decision-making process based on examination of organizational records and field observation. These models are fundamentally different from those based on participant recollection.

In this paper, the difference between the decision process models developed through various research strategies will be outlined. Decision-makers' and decision researchers' information processing limitations and beliefs in rationality will then be discussed as possible sources of bias in the recollection-based models. Finally, suggestions for minimizing biases in future descriptive research in decision processes will be offered.

Models Based on Participant Recollection

Models of the decision-making process developed through participant recollection are typically sequential and contain varying numbers of stages or phases as well as feedback loops which allow decisional activity to cycle between phases. Mintzberg et al. (1976) provide a well-known example of this type of model. They developed a sequential and cyclical model of the organizational decision-making process which involved heavy emphasis on problem identification, diagnosis, and formulation. Their model involves the following phases and routines:

A) The Identification Phase

- 1) The Decision Recognition Routine: Opportunities, problems, and crises are recognized and evoke decisional activity.
- 2) The Diagnosis Routine: Information relevant to opportunities, problems, and crises is collected and problems are more clearly identified.

B) The Development Phase

- 3) The Search Routine: Organizational decision makers go through a number of activities to generate alternative solutions to problems.
- 4) The Design Routine: Ready-made solutions which have been identified are modified to fit the particular problem or new solutions are designed.

C) The Selection Phase

- 5) The Screen Routine: This routine is activated when the search routine generates more alternatives than can be intensively evaluated. Alternatives are quickly scanned and the most obviously infeasible are eliminated.
- 6) The Evaluation-Choice Routine: An alternative is chosen either through a process of analysis and judgment or a process of bargaining among decision makers.
- 7) The Authorization Routine: When the individual making the decision does not have the authority to commit the organization to a course of action, the decision must move up the organizational hierarchy until it reaches a level at which the necessary authority resides.

Further, the model describes cyclic processes by which decision-makers may return to earlier phases as necessary. Dynamic factors in the decision environment may delay or speed up the decision process or may force decision-makers to repeat cycles (Mintzberg et al. 1976, pp. 252-266).

Later research using similar methodology has confirmed and expanded upon this sequential cyclical model. A study by Lyles (1981) involved interviews of 33 business executives and yielded a sequential and cyclical model focusing on the decision recognition and diagnosis routines of the identification phase. Lyles' model includes the substages of awareness/incubation, triggering, information gathering, and resolution, as well as numerous feedback loops.

Clark and Shrode (1979) using data from interviews with 40 public sector executives, developed a decision process model involving the phases of perception of disequilibrium, problem definition, alternative generation, and choice. In their model feedback loops are often the result of external pressure on decision-makers. They also proposed a model in which several decisions occur sequentially in dealing with the same particular problem.

Alternative Models

Witte (1972) and Cohen, March, and Olsen (1972) have developed alternative models based on archival data and field observation respectively. These bear little resemblance to the models previously discussed. There are two major differences between decision process models based on participant recollection and those based on archival records or field observations.

The first major difference between the two types of models has to do with the nature or the "how" of the decision making process. Models such as those of Mintzberg et al. (1976), Lyles (1981), and Clark and Shrode (1979) describe the decision process as involving a number of distinct phases. In Mintzberg et al.'s terms "we find logic in delineating distinct phases of the decision process but not in postulating a simple sequential relationship between them" (1976, p. 252). In place of a simple sequential relationship, the authors describe a process involving feedback cycles, interrupts, and numerous subroutines. However, this model, as well as the other models cited, tends to imply that one type of activity dominates others at a particular point; that decision makers' attention is focused on one phase at a time.

These models are contradicted by the work of Witte (1972), which was based on examination of records of company correspondence with regard to the decision to purchase Electronic Data Processing systems. He found no evidence for a focus of decisional activity at any particular phase. Instead, four major types of decisional activities (information gathering, alternatives development, alternative evaluation, and alternative selection) occurred simultaneously, with approximately equal frequency, throughout in the decision process. The total level of activity was high at the beginning of the process and at the end, just prior to choice, with a relatively low level of activity between these points.

Witte summarized his findings in this passage:

Human being cannot gather information without in some way simultaneously developing alternatives. They cannot avoid evaluating these alternatives immediately, and in doing this they are forced to a decision. This is a package of operations and the succession of these packages over time constitutes the total decision-making process (Witte, 1972, p. 180).

The second major difference has to do with the purposefulness or the "why" of the decision-making or choice process. Mintzberg and others, through their flowchart models, imply that decisional activity occurs in a stream and that the purpose of development activities like information gathering and alternatives generation is to reach a decision.

However, as Mintzberg et al. point out, the data their research assistants collected created an anomaly for their model. They report in a footnote:

There is one consistent difference between the reports (developed by their research assistants) and the model. In some cases, development activity was reported without selection activity following it. We assumed this to be an omission in the reports, and in the examples below, we always show development activity followed by evaluation-choice activity, unless there was an interrupt (Mintzberg et al., 1976, p. 268).

Indeed, it is necessary for the integrity of their model to make this assumption. However, alternative models of the organizational choice process which do not assume that the process is purposeful, might account for this apparent anomaly. Cohen, March and Olsen's (1972) Garbage Can model of choice is perhaps the clearest statement of this alternative type of model. This model represents one part of stream of research including Cyert and March (1963) and March and Olsen (1979). Though an attempt to fully explain the model here is inappropriate, some of its basic features must be discussed in order to show how it might explain Mintzberg et al.'s anomalous data. In describing the choice process in an "organized anarchy," the authors construct a model which involves independent streams of problems which persist through time, potential solutions and solution technologies which evolve, and decision

makers who are seeking a useful way to employ their time. Organizational choice is seen as the almost random convergence of "several relatively independent streams within an organization" (Cohen et al., 1972, p. 3), of "choice looking for problems, issues and feelings looking for decision situations in which they might be aired, solutions looking for issues to which they might be an answer, and decision-makers looking for work" (Cohen et al., 1972, p. 1).

It is possible for development activities like information gathering, alternatives generation, and alternatives evaluation to continue for long periods of time. However, solution of the problem only becomes possible after a choice opportunity emerges through the almost random meeting of these three streams. As Cohen et al. state:

A major feature of the garbage can process is the partial uncoupling of problems and choices. Although decision-making is thought of as a process for solving problems, that is often not what happens. Problems are worked upon in the context of some choice, but choices are made only when the shifting combinations of problems, solutions, and decision-makers happens to make action possible. (1972, p. 16)

In such a process, it is possible for development activity to occur without being followed by choice. Further, a number of problems may become attached to a particular choice opportunity with the result that the final choice may only partially resolve the problem which was the subject of the development activity.

At least some studies, then, have suggested that the decision-making or choice process is not a simple, sequential, or even purposeful process. If Barnard and others are correct in stating that participant recollection provides the only complete data on the decision-making

process, then the models of Witte and Cohen et al. may be biased due to incomplete information. However, another possibility is that the organizational decision-making process is accurately described in these models as non-sequential and quasi-random. If this is true, what would explain the tendency of decision-makers to recall it as sequential and purposeful?

Biases and Simplification Mechanisms

Research in the areas of cognitive psychology and behavioral decision theory has documented a number of cognitive processes by which decision makers impose order on their recollections ambiguous situations. March and Olsen (1979) have suggested that past organizational activities and choices are ambiguous and can be interpreted in a variety of ways. This is true almost by definition for strategic decision situations of the type studied by Mintzberg and others. Individuals involved in these choices may construct rationales to explain the choices after the fact in terms of their goals and perspectives on the process.

Ableson and Rosenberg (1958) and Steinbruner (1974) have discussed perceptual distortions arising from the need for cognitive consistency which could affect recollection of decision processes. These researchers suggest that information will be interpreted (and perhaps selectively ignored) so as to remove or reduce inconsistency between the information and prior beliefs (Ableson and Rosenberg, 1958; Steinbruner, 1974, pp. 97-101).

Jervis (1976, pp. 217-282) discussed the tendency of foreign policy decision-makers to adopt simplified cause and effect models to explain past events involving the behavior of nations. It may be that such a

need to simplify also effects decision-makers' recollection of their own decision processes.

Cognitive psychologists have long recognized the tendency of individuals to reorder and reconstruct events in recollection. Bartlett (1932), from his studies of the recall of unfamiliar narrative material, concluded that human memory in addition to being reproductive, is also productive. Individuals, in recalling this material, may omit parts, add others, and rearrange the sequence of events. He stated that memory involves a process of "imaginative reconstruction" (1932, p. 213). This reconstruction is controlled by individuals' emotions, attitudes, interests, and "efforts after meaning" (1932, p. 209).

Paul (1959) in extending Bartlett's work, used a similar recall task and found that distortions, omissions, and additions tended to occur at those places in the text which contained gaps and ambiguities and were lacking in sufficient redundancy to be adequately coherent. It may be that such distortions also occur in the recall of decision processes which are ambiguous, a feature of most strategic decisions.

Paul suggests that there are three points at which individuals' predispositions and biases may distort recollections. First, these predispositions may influence initial perceptions and interpretations of stimuli. Second, they may influence the way these stimuli are organized and stored in memory. Finally, they may influence the retrieval of information and its reproduction. Tversky and Kahnemann (1974) touch on this last point in their discussion of the availability bias in which judgements are distorted by decision-makers' inability to recall data bearing on the judgements.

Other researchers have found that recollected material, compared with the original material, showed evidence of such tendencies as simplification, condensation, rationalization, and conventionalization (Taft, 1954; Tressalt and Spragg, 1941; Northway, 1940). If the same types of distortions occur in decision-makers' recollections of decision processes, it is likely that actual decision processes are more complex and extended and less rational and conventional than decision-makers' recollections of them.

Biases which effect the reporting of the decision process may also introduce distortion in the recollection-based models of decision-making. A number of researchers have dealt with social desirability biases and demand characteristics as they effect subjects' behavior in experiments (see for example Webb, Campbell, Schwartz, and Sechrest, 1966, p. 17). If the decision-makers from whom the data is collected believe the choice process should be sequential and purposeful, or if they perceive that the researchers questioning them have this belief, they may distort their reports of the process to conform to these expectations. James March (1979, pp. 69-71) stated that the bias in favor of rationality is very pervasive in our culture. By this he meant that people believe choices should be made by relating projected consequences systematically to objectives. If the sequential decision models are a part of this bias, managers might "rationalize" their accounts of decisions due to a reluctance to appear irrational. Further, Loftus (1975) has shown that "leading questions" on the part of researchers can strongly influence individuals' recollection of complex events. Leading questions by a researcher committed to purposeful sequential models might lead decision-makers to recall those aspects of a decision process which fit such models.

Conclusions and Implications for Future Research

It seems reasonable that decisions differ in terms of the extent to which they can be described by purposeful, sequential models. For those decisions which do fit these models, we would expect a high degree of agreement among decision makers on the phases, cycles and sequence describing the decision process. In those decisions better described by more simultaneous or random models (such as those advanced by Witte and Cohen, March and Olsen) we would expect decision-makers' recollections to be dissimilar in these respects. They may each recall the process as purposeful and report it as sequential. However, because each has a unique perspective and unique needs and goals, each will reconstruct and order the process differently.

It may be possible to combine the various data gathering techniques to develop more objectively accurate or valid descriptions of decision processes. Researchers' observations of the activities of decision-makers and their examination of archival data could potentially serve to confirm managers' statements about the process. Ideally, researchers might construct models of decisions from observation and secondary sources and then discuss these with the managers involved in the process. However, time and resource constraints might make this sort of research difficult.

Since the researchers' own biases and preferences for either sequential purposive models or simultaneous quasi-random models may influence their collection and interpretation or ordering of data relevant to a decision process, it might be appropriate for two researchers, one devoted to each type of model, to simultaneously interview the same decision-maker and participate in the "probing" questions which unavoidably

structure the decision-maker's description of the process. Further, these researchers should interview more than one decision-maker in order to construct a description of the decision process which is less dependent on a single perspective. Mintzberg et al.'s (1976) study apparently did involve multiple interviewers and multiple decision-makers in many cases. However, it is unlikely that the interviewers had different theoretical perspectives on the decision making process to guide their questions. Further, the research assistants were specifically asked to develop flow chart models of the process.

When decision-makers disagree in their descriptions of the process, it may be possible, through simple discussions or a delphi-based interactive process, to achieve consensus in the descriptions. If possible, the decision process descriptions should be checked by the researchers against archival data to assure that the descriptions are at least consistent with the facts in these documents.

In any case, the considerations outlined in this paper suggest caution in interpreting the models developed from information generated through managers' recollections. It seems likely that these models involve clearer phases and are more purposeful and rational than the actual decision processes they purport to describe.

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